

Missouri Forest Health 1998 Highlights

Weather effects

The weather this year was so variable that forest health specialists ran out of cliches to describe what was going on. Beginning in March with 60 degree temperatures, the weather flip-flopped from warm to cold and back again just about every month through December. This kept everyone guessing, including the trees. But fortunately, damage due to the weather extremes was minimized by the frequent reversals in weather patterns.

Foliar infections and insect damage in April and June/July were checked by heat spells in May and August. The drought stress of May and August was checked by the rains of June and September. October was again warm, and the fall was long and dry. November saw the first cold weather, but no hard freezes. In late November, the temperature climbed again setting new record highs. Hard freezes finally occurred in late December.

So while some species experienced damage associated with narrow windows of stress and storm-related wind and hail, most fared well. And the unusually long season of frost-free weather prompted substantial overall growth. If it wasn't for the August heat, which shut trees down early, fall foliage colors would have been spectacular.

Because of the long dry fall, trees are somewhat dry going into winter. Several species put on late flushes of growth and a few shrub species bloomed. Some winter injury due to this late-season growth activity is likely. Winter watering is going to be particularly important for trees under stress, evergreens, and new transplants. Tree wrap may help young trees and those that continued to put on growth late into the season.

Gypsy moth

The Missouri Cooperative Gypsy Moth Survey continued its statewide detection program in 1998 by placing and monitoring more than 11,000 pheromone traps. A total of 17 moths were captured this year in four widely separated areas. Eleven moths were caught in the St. Louis area, three were caught near Kansas City, two were caught near Branson in southwestern Missouri, and one was caught in Bollinger County in southeastern Missouri.

A few moths have been captured every year since 1980 in St. Louis and since 1991 in the Branson area. Gypsy moths have also occasionally been caught in past years in the Kansas City area. Fortunately, however, no established populations have yet been found in Missouri. The high volume of interstate traffic going through urban areas and through the many popular vacation and recreation sites around Branson obviously provides many opportunities for gypsy moths to hitchhike into those areas.

A record eight gypsy moths were caught in one trap in a St. Louis park in 1998. This is the highest number of moths ever taken in a single trap in Missouri's gypsy moth survey.

Examination of the site by state and federal entomologists revealed no other gypsy moth life stages. However, that number of moths in a single trap is a matter of concern, and the site will be closely monitored in the future. All sites in Missouri where gypsy moths were detected in 1998 will be trapped at an increased intensity in 1999.

Sycamore anthracnose

Warm weather in March, which caused buds to break early, and cold weather in April provided favorable conditions for foliar diseases on some tree species. Those hardest hit were those that generally leaf out early in the season such as maple, ash and sycamore. Those that flush out later were protected from foliar diseases by the hot, dry weather in May. May's weather also protected the second flush of growth on those trees that lost the first to disease.

Of the species showing high rates of foliar disease, sycamore was the most obvious. Across the state, trees lost their first flush of growth and were slow to put on a second. Even when viewed at highway speeds, the bare white branches standing above the dark green forest were noticeable.

Because this is the third year of four that anthracnose has caused severe damage on sycamore, we are now beginning to see the onset of decline symptoms on some trees. These include thin sparse crowns, late leaf out, early leaf drop and branch die-back. No increase in mortality has been seen so far, but it may yet occur if the trees aren't able to recover over the next several years.

Jumping oak gall

Heavy populations of jumping oak gall wasps were evident on white oaks in eastern Missouri in 1998. Severe browning and premature leaf drop was present on over 1.8 million acres in 12 counties near St. Louis. The wasp, probably *Neuroterus saltatorius*, induces pin-head size galls to form on oak leaves in the spring. Each gall contains a single wasp larva. Galls eventually drop from the leaves and may be seen to jump like beans once they have fallen to the ground. On heavily infested trees, leaves turn brown and drop by mid-summer, and new leaves are produced. These trees will survive, but the defoliation and subsequent production of new leaves is stressful. High populations of this insect have periodically appeared in eastern and southwestern Missouri in past years. The mild winter in 1998 may have been a contributing factor to the outbreak seen this year.

Periodical Cicadas and Multicolored Asian Lady Beetle

Some forest insects that generated tremendous amounts of public concern and media attention in 1998 were periodical cicadas and the multicolored Asian lady beetle. This spring Missouri and other parts of the Midwest witnessed a rare phenomenon that only occurs once every 221 years, a combined emergence of 13-year and 17-year periodical cicadas. A 13-year brood emerged over most of Missouri except the northwest and southeast corners of the state, while a 17-year brood emerged in the western and northwestern parts of the state. Intensity of emergence was patchy with some areas having extremely heavy populations, and others none at all. Flagging, or branch damage, due to cicada oviposition became apparent by July and increased as the summer progressed. The crowns of many hardwood trees throughout Missouri were heavily spotted with dead branch tips by the end of summer.

Although not a pest of trees, the multicolored Asian lady beetle is an exotic species that resides in the forests of Missouri and other southern and eastern states and can at times become a serious nuisance for homeowners. These beetles are predators that feed on aphids and other small insects on trees, however, in the fall, huge numbers of swarming lady beetles congregate on buildings and often get inside houses as they look for overwintering sites. Asian lady beetles were first detected in Missouri in 1993 and have since expanded their range across much of the state. In 1998, a week of cold temperatures at the end of October followed by a few days with high temperatures in the 70's apparently triggered a rapid increase in swarming behavior which caused considerable public concern throughout much of central and southern Missouri.